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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,225	08/19/2003	Jae-Seung Baek	0630-1831P	3465

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EXAMINER	
SANTIAGO, MARICELI	
ART UNIT	**PAPER NUMBER**
2879	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,225	BAEK ET AL.	
	Examiner	Art Unit	
	Mariceli Santiago	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3,5-7,10-12,14-16,19 and 20 is/are rejected.

7)☒ Claim(s) 4,8,9,13,17 and 18 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 19 August 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Amendment, filed on August 19, 2003, has been entered and acknowledged by the Examiner.

Claims 1-20 are pending in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-7, 10-12, 14-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (US 6,812,631) in view of Mashita et al. (JP 2000-306528 A).

Regarding claim 1, Murakami discloses a color cathode ray tube, comprising a panel having a substantially flat outer surface and an inner surface having a curvature, a funnel coupled to the panel, a deflection yoke installed at an outer surface of the funnel, wherein the panel and the funnel satisfy the following condition, $U/U' \geq 2.5$, when a diagonal size of an effective surface of the panel is U (D = 860 mm, Table 1, Ex. 1), and a tube axis directional distance from an outer surface center of the panel to a boundary portion (TOR) between a body part and a yoke part of the funnel is U' ($H_B + H_S$ = 246 mm, Table 1, Ex. 1). Murakami fails to teach a reinforcing band installed at a skirt portion of the panel. However, in the same field of endeavor, Mashita discloses a color cathode ray tube further comprising a reinforcing band installed at a skirt portion of the panel, which improves the CRT's explosion-proof characteristic and reduce its beam landing variation. Thus, it would have been obvious at the time the

invention was made to a person having ordinary skills in the art to incorporate the reinforcing band disclosed by Mashita in the CRT of Murakami in order to improve the CRT's explosion-proof characteristic and reduce its beam landing variation.

Regarding claim 2, Murakami discloses the claimed invention except for the limitation of a maximum deflection angle of a electron beam is about 100°-140°. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a maximum deflection angle of a electron beam of about 100°-140°, since optimization of workable ranges is considered within the skill of the art.

Regarding claim 3, Murakami discloses a color cathode ray tube wherein the panel and funnel satisfy the following condition, $U/L \geq 2.5$, when a tube axis directional distance from the outer surface center of the panel to a deflection reference line of the funnel is L (Table 1, Ex. 1, where L is $H + T_{fc} = 263.2 + 17.5 = 280.7$ mm).

Regarding claim 5, Murakami discloses a color cathode ray tube wherein the panel satisfies the following condition, $6.5 \leq U/OAH \leq 12.5$, when a tube axis directional height of the panel is OAH ($H_s = 246$ mm, Table 1, Ex. 1).

Regarding claims 6 and 7, the combination Murakami-Mashita discloses a cathode ray tube wherein the reinforcing band satisfies the following condition, $h \geq 7$ mm (see Mashita, Table 1, CRT1-CRT4), inclusive when $10.5 \text{ mm} \leq h \leq 20$ mm (see Mashita, Table 1, CRT5-CRT6), when a tube axis directional distance from the outer surface center of the panel to a front edge portion of the reinforcing band is h. The same motivation for combining as stated in claim 1 applies.

Regarding claim 10, Murakami discloses a color cathode ray tube wherein a vertical section surface of a yoke part of the funnel is about non-circular shape (Column 5, lines 19-23).

Regarding claim 11, Murakami discloses a color cathode ray tube comprising a panel having a substantially flat outer surface and an inner surface having a curvature, a funnel coupled to the panel, a deflection yoke installed at an outer surface of the funnel, wherein the panel and funnel satisfy the following condition, $U/L \geq 2.5$, when a diagonal size of an effective surface of the panel is U (D = 860 mm, Table 1, Ex. 1) and a tube axis directional distance from the outer surface center of the panel to a deflection reference line of the funnel is L (Table 1, Ex. 1, where L is $H + T_{fc} = 263.2 + 17.5 = 280.7$ mm). Murakami fails to teach a reinforcing band installed at a skirt portion of the panel. However, in the same field of endeavor, Mashita discloses a color cathode ray tube further comprising a reinforcing band installed at a skirt portion of the panel which improves the CRT's explosion-proof characteristic and reduce its beam landing variation. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the reinforcing band disclosed by Mashita in the CRT of Murakami in order to improve the CRT's explosion-proof characteristic and reduce its beam landing variation.

Regarding claim 12, Murakami discloses a color cathode ray tube wherein the panel and the funnel satisfy the following condition, $2.4 \leq U/L \leq 5.5$.

Regarding claim 14, Murakami discloses a color cathode ray tube wherein the panel satisfies the following condition, $6.5 \leq U/OAH \leq 12.5$, when a tube axis directional height of the panel is OAH (H_s = 246 mm, Table 1, Ex. 1).

Regarding claims 15 and 16, the combination Murakami-Mashita discloses a cathode ray tube wherein the reinforcing band satisfies the following condition, $h \geq 7$ mm (see Mashita, Table 1, CRT1-CRT4), inclusive when $10.5 \text{ mm} \leq h \leq 20$ mm (see Mashita, Table 1, CRT5-

CRT6), when a tube axis directional distance from the outer surface center of the panel to a front edge portion of the reinforcing band is h. The same motivation for combining as stated in claim 11 applies.

Regarding claim 19, Murakami discloses a color cathode ray tube wherein a vertical section surface of a yoke part of the funnel is about non-circular shape (Column 5, lines 19-23).

Regarding claim 20, Murakami discloses the claimed invention except for the limitation of a maximum deflection angle of a electron beam is about 100°-140°. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a maximum deflection angle of a electron beam of about 100°-140°, since optimization of workable ranges is considered within the skill of the art.

Allowable Subject Matter

Claims 4, 8, 9, 13, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 4 and 13, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 4 and 13, and specifically comprising the limitation of the panel and tie funnel satisfy the following condition, $U/OL \leq 0.55$, when a tube axis directional distance from the outer surface center of the panel to an end portion of the funnel is OL.

Regarding claims 8 and 17, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 8 and 17, and specifically

comprising the limitation of the panel and reinforcing band satisfy the following condition, $0.55 \leq W/OAH \leq 0.8$, when a width of the reinforcing band is W and a tube axis directional height of the panel is OAH.

Regarding claim 9 and 18, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 9 and 18, and specifically comprising the limitation of the panel and reinforcing band satisfy the following condition, $0.35 \leq BP/OAH \leq 0.65$, when a tube axis directional distance from a connecting portion of the panel and the funnel to the reinforcing band center is BP and a tube axis directional height of the panel is OAH.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

3/18/05

Mariceli Santiago
Patent Examiner
Art Unit 2879